

REMARKS

This preliminary amendment is presented to place the application in proper form for examination. No new matter has been added. Early examination and favorable consideration of the above-identified application is earnestly solicited.

A check in the amount of \$558 is enclosed in payment for the addition of 31 new dependent claims.

Any additional fees or charges required at this time in connection with the application may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,
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AMENDMENTS TO THE SPECIFICATION AND CLAIMS SHOWING CHANGES

In the Specification:

On page 2, amend the paragraph beginning on line 11 as follows:

--In accordance with the invention, [is based in that the] treating agent is spread on the web or on a [transferring,] moving surface that transfers the treating agent onto the web, from several parallel openings, which are formed in a plate-like piece so that the plate surrounds the openings around the entire outer periphery of the opening, whereupon the jet is defined by the opening made in the plate-like piece.

On page 4, replace the paragraph beginning on line 35 as follows:

--Fig. 1 is a side view of a cross-section of one arrangement according to the invention [as a cross-section.];

Fig. 2 is a top view of [one arrangement] another embodiment according to the invention[.] ; and

Fig. 3 is a side view of [one] a cross-section of yet another embodiment of the invention[as a cross-section].--

On page 5, amend the paragraph beginning on line 3 as follows:

-- In Fig. 1, an application device for applying a treating agent to a surface of a web is fitted in the vicinity of a film transfer roll 1[,] . [which] The application device is best [to install] installed for applying a treating agent to a surface of a web on the side or on top of [a] the

moving web, or as the application device of a film transfer coater [1], as is the case in this example. If the application device is used to spread the treating agent directly on the web, the web can be supported at the opposite side with respect to the application side by a roll, a belt, a wire or another support member. In a simultaneous, two-sided treatment, the jets hitting the web at opposite sides actually also support the web. The device consists of a body container 2, in which a feeding chamber 3 is formed. The feeding chamber 3 is closed by a screen plate 4, which is clamped to the body 2 by a spacer 7. The spacer 7 has an opening next to the feeding chamber 3, the opening being closed by a nozzle plate 6 attached on top of the spacer 7 by using attachments 8. Thus an intermediate case 5 is formed between the nozzle plate 6 and the screen plate 4. The body container 2, the spacer 7, and the attachments 8 can be bonded by using pressure hoses and springs, for example, so that when pressure is released from the pressure hoses, the springs part these members and the screen plate and the nozzle plate can be replaced.

On page 8, amend the paragraph beginning on line 10 as follows:

--In some cases, it is necessary to clean the nozzle plate 6 or the screen plate 4 during operation. Fig. 1 shows three possible cleaning methods. To clean the screen plate 4, a steel plate 12 has been placed in the feeding chamber 4 in the direction of the chamber, one edge of the plate being against the surface of the screen plate 4 on the side of the feeding chamber 3. The steel plate 12 can be moved in the direction of the chamber, so that it scrapes off any impurities attached to the surface of the screen plate 4 on the side of the chamber 3. Matter that is handled may dry on the surface on the side of the surface that is treated of the nozzle plate 6.

This can be prevented with the aid of steam spraying by blasting steam against the nozzle plate 6 from the steam nozzles located next to the nozzle plate. The steam nozzles can be formed by simply making suitable size holes directly in a steam tube 13 or by using one or more traversing nozzles. A collector trough 14 is fitted around the steam tube 13, collecting the condensed steam and the material diluted by steam. If such steam purification is used, the device should be located so that the collector through 13 is at the lower edge of the device. A minor leak of the treating agent directly to the surface that is treated is often acceptable, whereupon no collector trough is needed. When needed, the openings 10 in the nozzle plate can be cleaned by a needle-shaped water jet 15, which travels in the direction of the row of openings and alternately sprays the openings clean. As the openings do not block easily, such cleaning is seldom needed. During breaks in production, the device can be washed with pressurized water.--

On page 9, amend the paragraph beginning on line 14 as follows:

-- Fig. 3 shows an embodiment, in which the treating agent is fed to the nozzle plate by using two-stage choking. The body container 2 of the device comprises a feed channel 17, from where borings 18 go to a feeding chamber 3, which is closed by a screen plate [3] 4. Furthermore, second borings 20 come from the screen plate [3] 4 to an intermediate case 5 that is behind the nozzle plate 6. In this solution, the body container 2 is closed by an integral attachment 16, which is connected to the body container 2 by using bolts 20 and pressure tubes 21. As the feeding pressure of the treating agent must be kept higher with respect to the pressure difference required by the nozzle openings to ensure a good cross profile, such a choking system

is often necessary. In the device in Fig. 3, choking is three-stage, i.e., the first pressure drop takes place in the first borings, the second one across the screen plate, and the third one in the second borings. Simply measuring the volume flow coming to the device, or the difference between the incoming and the outgoing flow can carry out the control of the coat weight, whereupon the amount of coating going to the web is obtained directly from the measuring. With the flow control, the amount of treating agent can automatically be adjusted to the desired value, taking into consideration the velocity of the machine.--

In the Abstract:

Amend the abstract as follows:

--A method and [an arrangement] apparatus for spreading a treating agent, for example, size or a coating onto a moving surface in the manufacture of the web-shaped folios or paper and paperboard and various sheet products in particular,[. In the method,] includes feeding the treating agent [is fed] into at least one feeding chamber [(3)] and directing the agent [is directed] from the feeding chamber [(3)] onto the moving surface [(1)]. Jets are formed from the treating agent by directing the agent through at least one nozzle plate [(6)] comprising openings [(10)] that are defined by the nozzle plate [(6)] around the entire periphery, and the formed jets are applied directly onto the moving surface [(1)].

[(Fig. 1)]--